AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. - 42. (Cancelled)

43. (Currently amended) A metallurgical vessel for a molten bath direct smelting process having free space above a molten bath and wherein metalliferous material and carbonaceous material are supplied to the bath and smelted to molten iron and slag and wherein gases released from the bath are combusted in the free space, the vessel comprising:

an outer shell having a plurality of openings, each opening surrounded by a rigid tubular protrusion that is connected rigidly to the shell and that protrudes outwardly from the shell; and

a plurality of cooling panels forming an interior lining for at least an upper part of the vessel, each panel comprising a coolant flow tube shaped in a zig-zag formation to form the panel and having internal passages for flow of coolant there through between tubular coolant inlet and outlet connectors, and a plurality of rigid projections for supporting the load of the panel, which projections are connected rigidly to the flow tubes and project laterally of the panel;

wherein the ~~outer shell is provided adjacent each cooling panel with a plurality of openings surrounded by tubular protrusions protruding outwardly from the shell and~~

~~each panel is provided with a~~ plurality of rigid projections ~~projecting laterally of the panel~~ project through said openings in the outer shell and are rigidly connected to outer ends of the tubular protrusions [[in]] by connections ~~which~~ that attach the cooling panel to the outer shell and which seal the openings and support the load of the panel.

44. (Cancelled)

45. (Currently amended) A vessel as claimed in claim [[44]] 43, wherein said connections comprise plate members having apertures locating the projections, the plate members being welded to the projections and to the outer ends of the protrusions to seal the openings.

46. (Previously presented) A vessel as claimed in claim 43, wherein the cooling panels are lined interiorly of the vessel with refractory material to form an interior refractory lining for the vessel, the cooling panels being operable by flow of coolant through said passages to cool the refractory material.

47. (Previously presented) A vessel as claimed in claim 43, wherein said projections are of elongate formation and project laterally of the panel in mutually parallel relationship to one another.

48. (Previously presented) A vessel as claimed in claim 43, wherein said projections include a series of pins.

49. (Previously presented) A vessel as claimed in claim 48, wherein said projections further comprise tubular coolant inlet and outlet connectors for the panel.

50. (Previously presented) A vessel as claimed in claim 43, wherein the vessel shell includes a generally cylindrical section lined with a series of said cooling panels.

51. (Previously presented) A vessel as claimed in claim 50, wherein the panels of said series are of elongate arcuate formation with a curvature to match the curvature of the generally cylindrical section of the vessel.

52. (Previously presented) A vessel as claimed in claim 51, wherein the panels of said series have a greater length than height.

53. (Previously presented) A vessel as claimed in claim 51, wherein the projections project laterally outwardly in parallel relationship with one another and so as to be parallel with a central plane extending laterally of the panel and radially of the panel curvature.

54. (Previously presented) A vessel as claimed in claim 50, wherein the panels of said series are disposed in vertically spaced tiers of panels spaced circumferentially of the vessel.

55. (Previously presented) A vessel as claimed in claim 54, wherein the panels are closely spaced but with gaps between the circumferentially spaced panels sufficient to permit removal of each panel by bodily movement thereof.

56. (Previously presented) A vessel as claimed in claim 55, wherein there are at least six circumferentially spaced panels in each tier.

57. (Cancelled)

58. (Currently amended) A vessel as claimed in claim [[57]] 43, wherein the projections are comprised of pins attached to the zigzag tube formations and tubular coolant and inlet and outlet connectors extending from ends of the zigzag tubular formations.

59. (Currently amended) A vessel as claimed in claim [[57]] 43, wherein at least a portion of the panels have inner and outer zigzag formations forming inner and outer panel sections relative to the vessel shell.

60. (Previously presented) A vessel as claimed in claim 59, wherein the arcuate length of the outer panel section is less than the arcuate length of the inner panel section thereby allowing a gap between vertical edges of adjacent panels to be minimised.

61. (Previously presented) A vessel as claimed in claim 59, wherein said inner panel section and said outer panel section are vertically off-set such that one or more horizontal pipe segments of one panel section are located intermediate horizontal pipe segments of the other panel section.

62. (Previously presented) A vessel as claimed in claim 43 and further comprising a refractory lined hearth, a barrel section disposed above the refractory lined hearth and an off-gas chamber disposed above the barrel section.

63. (Previously presented) A vessel as claimed in claim 62, wherein a portion of the barrel section is lined with double layer panels and the off-gas chamber is lined with single layer panels.

64. (Previously presented) A vessel as claimed in claim 63, wherein only a lowest row of panels in said barrel section comprise single layer panels.

65. (Previously presented) A vessel as claimed in claim 43, wherein said vessel locates a plurality of solids injection lances each extending through one of a plurality of apertures in the outer shell into an interior region of the vessel and said plurality of cooling panels provide a plurality of apertures corresponding to said apertures in the outer shell whereby said lances extend through said panels into said interior of said vessel.

66. (Previously presented) A vessel as claimed in claim 65, wherein at least one said aperture is provided by a recess located on an edge of at least one panel.

67. (Previously presented) A vessel as claimed in claim 66, wherein said at least one aperture is provided by alignment of at least two recesses located along edges or at corners of two or more panels.

68. (Previously presented) A vessel as claimed in claim 65, wherein the lances are located at a common height on the vessel shell at least some of the panels located at said height of said lances having a length corresponding substantially to the arcuate distance between the lances.

69. (Currently amended) A cooling panel for mounting on an outer shell of a metallurgical vessel so as to form part of an internal lining of that shell, the vessel being suitable for a molten bath direct smelting process having free space above a molten bath and wherein metalliferous material and carbonaceous material are supplied to the bath and smelted to molten iron and slag and wherein gases released from the bath are combusted in the free space, the cooling panel comprising:

a curved panel body being formed of a single coolant tube shaped to form a zigzag configuration, the coolant tube having an internal passage means for flow of coolant therethrough between tubular coolant inlet and outlet connectors, and

a plurality of rigid projections projecting laterally of the panel to one side of the panel body, the projections being [[and]] capable of supporting the panel when extended through openings in the shell and rigidly connected to the shell exteriorly of the vessel.

70. (Cancelled)

71. (Currently amended) A cooling panel as claimed in claim [[70]] 69, wherein the panel body is formed of a single coolant tube shaped to form adjacent inner and outer panel sections of zig zag formation and said projections project laterally outwardly from the outer panel section.

72. (Previously presented) A cooling panel as claimed in claim 71, wherein said inner panel section and said outer panel section are vertically off-set such that one or more horizontal pipe segments of one panel section are located intermediate horizontal pipe segments of the other panel section.

73. (Previously presented) A cooling panel as claimed in claim 71 wherein the length of the outer panel section is less than the length of the inner panel section thereby in use allowing a gap between vertical edges of adjacent panels to be minimised.

74. (Previously presented) A cooling panel as claimed in claim 71, wherein the panel is of elongate arcuate formation and the outer panel section is disposed on the outer side of the panel curve with the projections projecting laterally outwardly in parallel relationship with one another and so as to be parallel with a central plane extending laterally of the panel and radially of the panel curvature.

75. (Previously presented) A cooling panel as claimed in claim 71, wherein said panel is of elongate arcuate formation having a greater length than height.

76. (Previously presented) A cooling panel as claimed in claim 71, wherein the projections comprise a series of pins and tubular coolant inlet and outlet connectors extending from ends of the coolant flow tube.

77. (Previously presented) A cooling panel as claimed in claim 76, wherein the tubular coolant connectors are disposed at one end of the panel and the pins are spaced across the panel between its ends.

78. (Previously presented) A cooling panel as claimed in claim 76, wherein the pins are connected to the panel by means of connector straps each fastened at its ends to adjacent tube segments of the inner panel section and extending between its ends outwardly across a tube segment of the outer panel section.

79. (Previously presented) A cooling panel as claimed in claim 78, wherein the connector straps are generally V-shaped with the root of the V-shape curved to fit about the respective tube segment of the outer panel section.

80. (Previously presented) A cooling panel as claimed in claim 78, wherein the pins are welded to the connector straps so as to extend outwardly from the roots of the V-shapes.

81. (Currently amended) A method of mounting a cooling panel on an outer shell of a metallurgical vessel so as to form part of an internal lining of that shell, the vessel being suitable for a molten bath direct smelting process having free space above a molten bath and wherein metalliferous material and carbonaceous material are supplied to the bath and smelted to molten iron and slag and wherein gases released from the bath are combusted in the free space, the cooling panel having a coolant flow tube shaped in a zigzag formation to form the panel and having internal passages for flow of coolant therethrough between tubular coolant inlet and outlet connectors, the method comprising:

providing the cooling panel with a plurality of projections projecting laterally from the panel,

providing the outer shell of the vessel with a plurality of openings to receive the panel projections and with rigid tubular protrusions surrounding the openings and protruding outwardly from the shell,

extending the projections through openings in the shell to bring the panel into a position in which it lines part of the interior of the shell, and

forming rigid connections between each of the projections and respective outer ends of the tubular protrusions on the outside of the shell which connections mount the panel on the outer shell and to seal the openings and to support the load of the panel.

82. (Previously presented) A method as claimed in claim 81, wherein the shell is provided with tubular protrusions surrounding said openings and protruding outwardly from the shell and said connections are formed between the projections and the outer ends of the tubular protrusions.

83. (Cancelled)

84. (New) A method as claimed in claim 81, wherein the projections include the tubular coolant inlet and outlet connectors.